

RAMS, Some Crystal-Face Preliminary Results and Analysis



Francisco P. J. Valero, Brett Bush, Quyen N.
Hart, David Marsden and Shelly K. Pope

*Scripps institution of Oceanography, University
of California, San Diego*

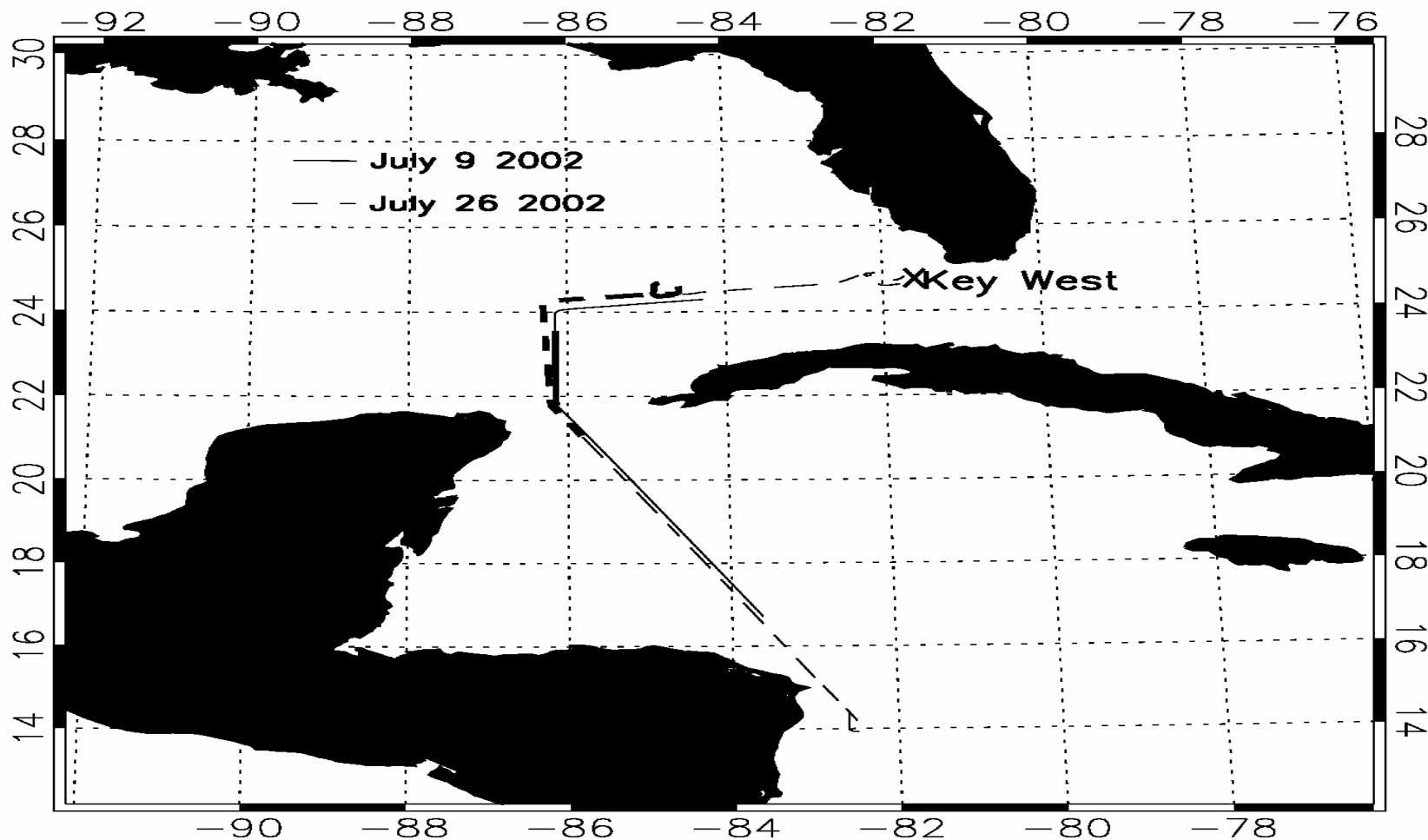
Conclusions and Progress so Far



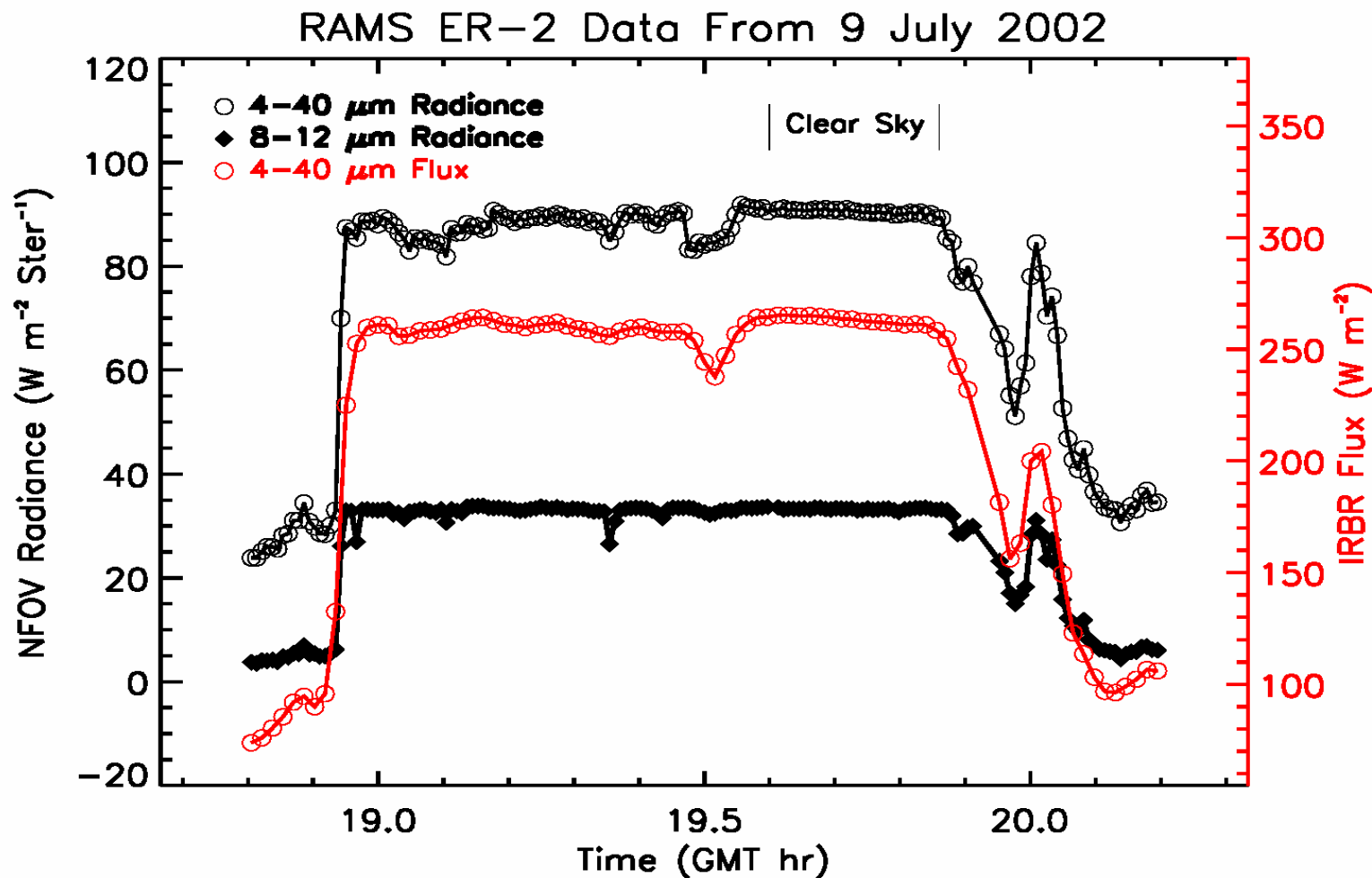
- Collected and archived good quality radiation data from the ER-2 and WB-57 (IR radiances and irradiances plus Solar broad-band irradiances and Visible Spectral (seven channels) Direct/Diffuse (WB-57 only)).
 - Studied one aspect of the radiative impact of the coupled ocean-atmosphere system. The water vapor-clear sky greenhouse effect in the C-F domain.
 - Compared Model calculations and satellite observations (Ceres) with data for “clear” and “cloudy” sky conditions.
 - Started analysis to retrieve cloud properties from radiance and irradiance measurements.
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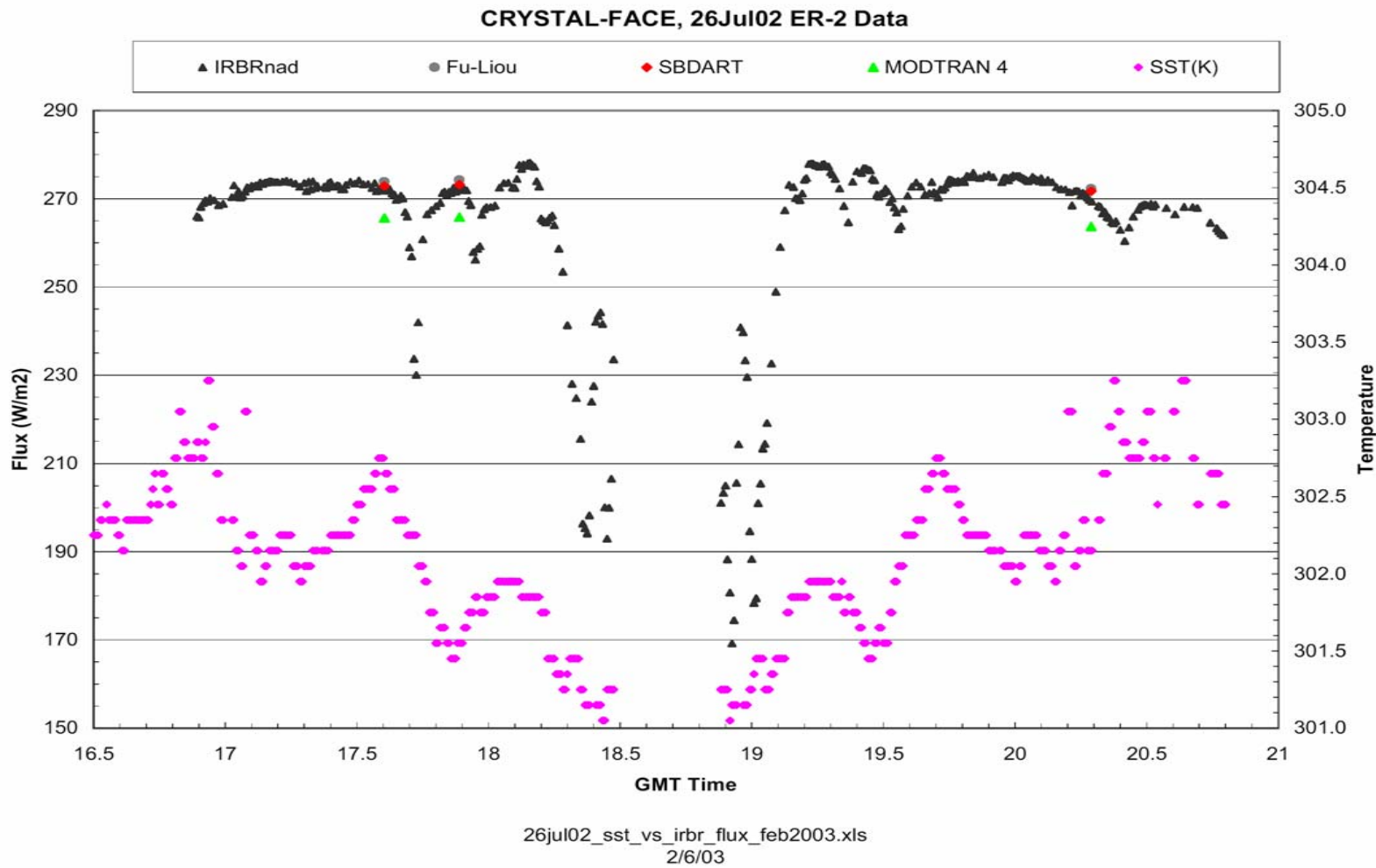
July 9 and July 26 Flight Tracks



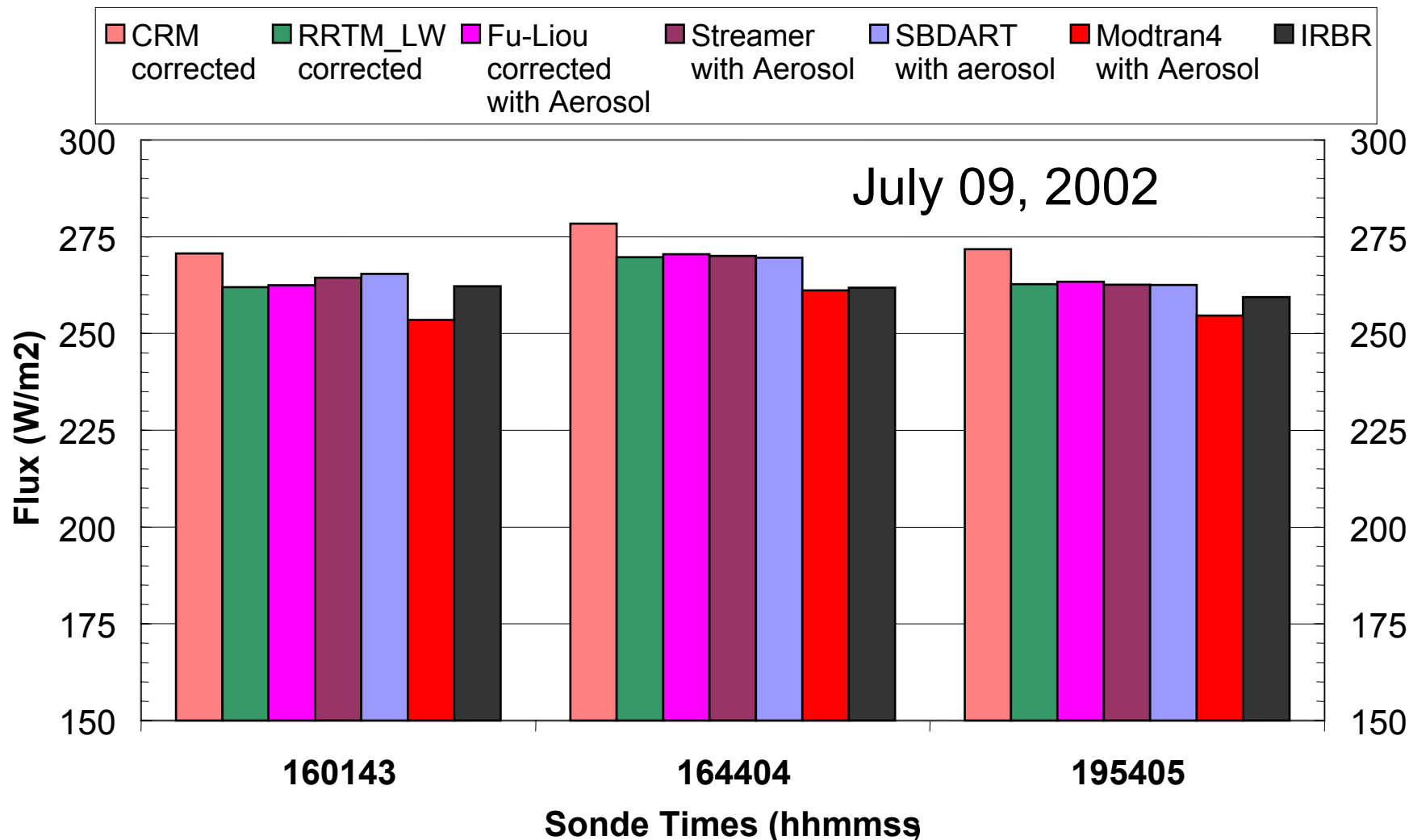
RAMS ER-2 IR Radiances and Irradiances July 09, 2002



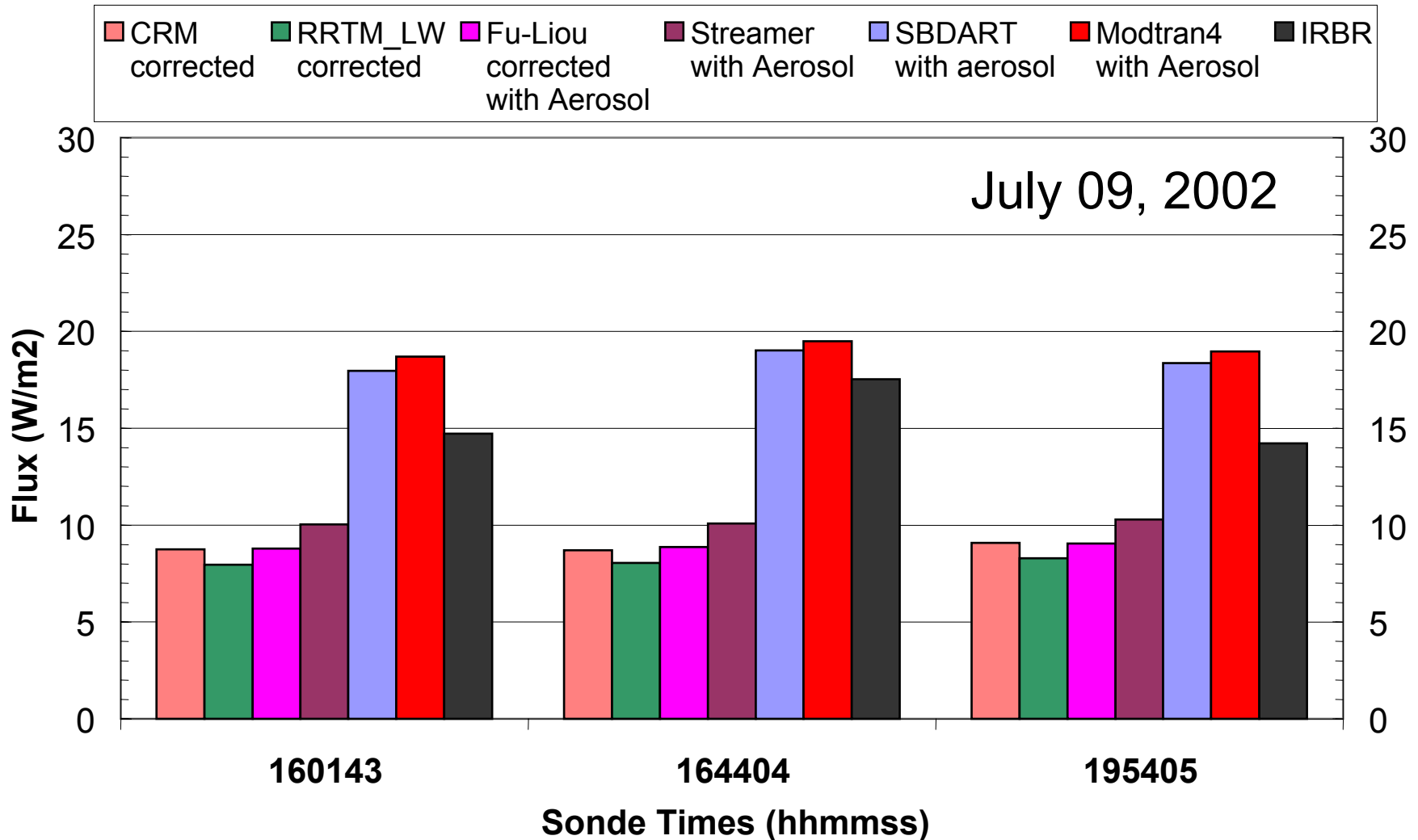
Measured and Modeled IR Irradiances and Sea Surface Temperatures



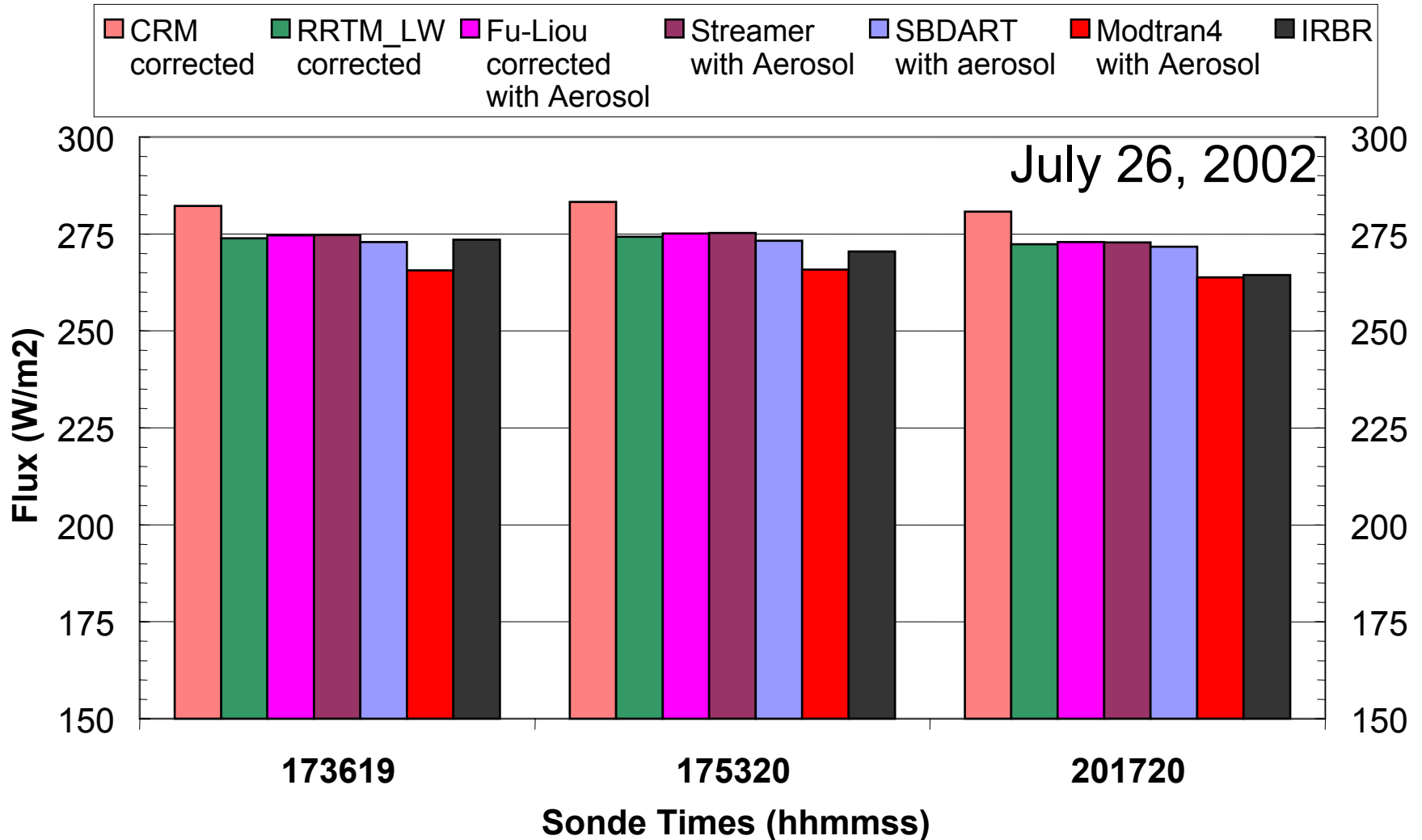
Calculated and Measured LW Upwelling Flux at 20 km; Marine Aerosol, $\tau = 0.20$



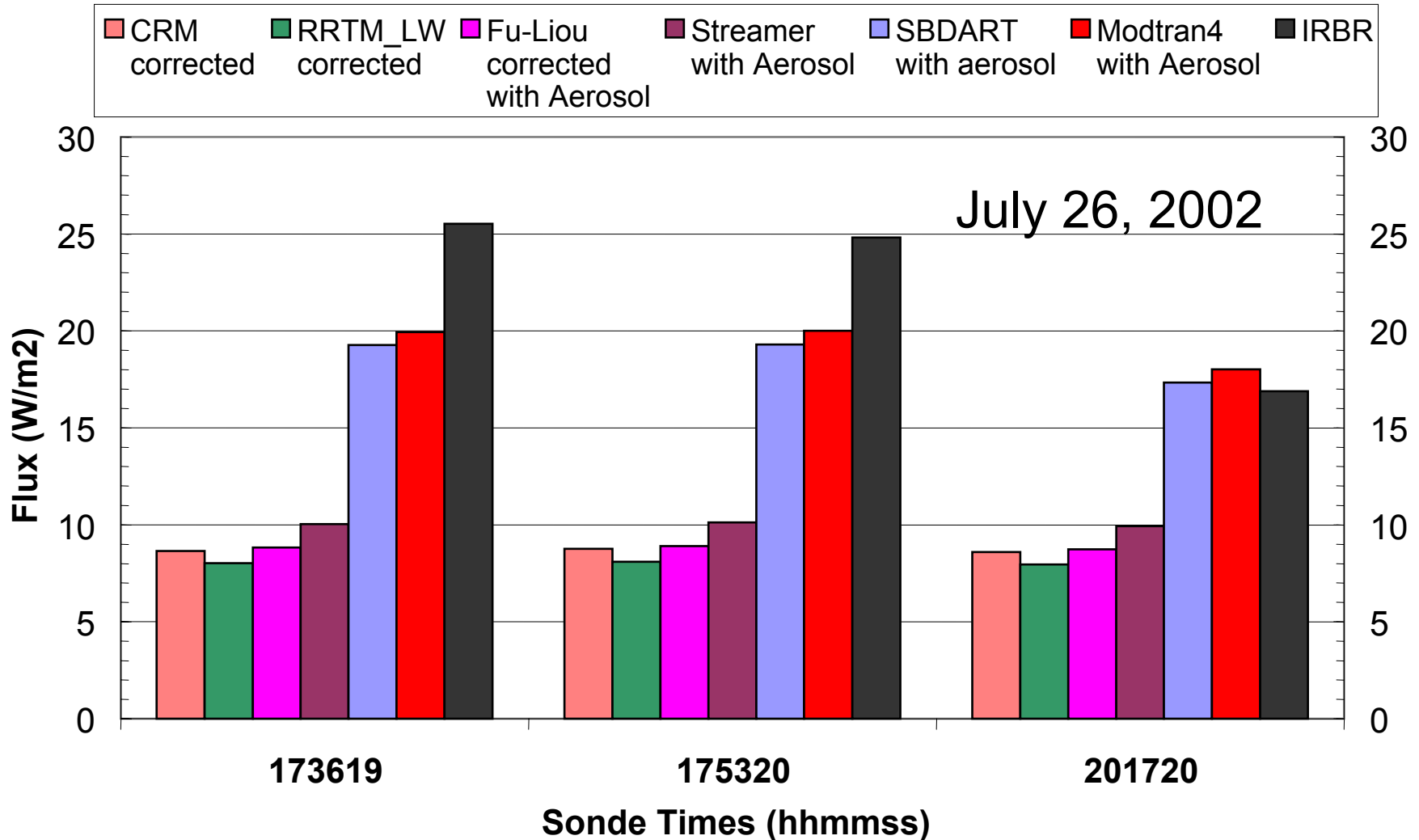
Calculated and Measured LW Downwelling Flux at 20 km



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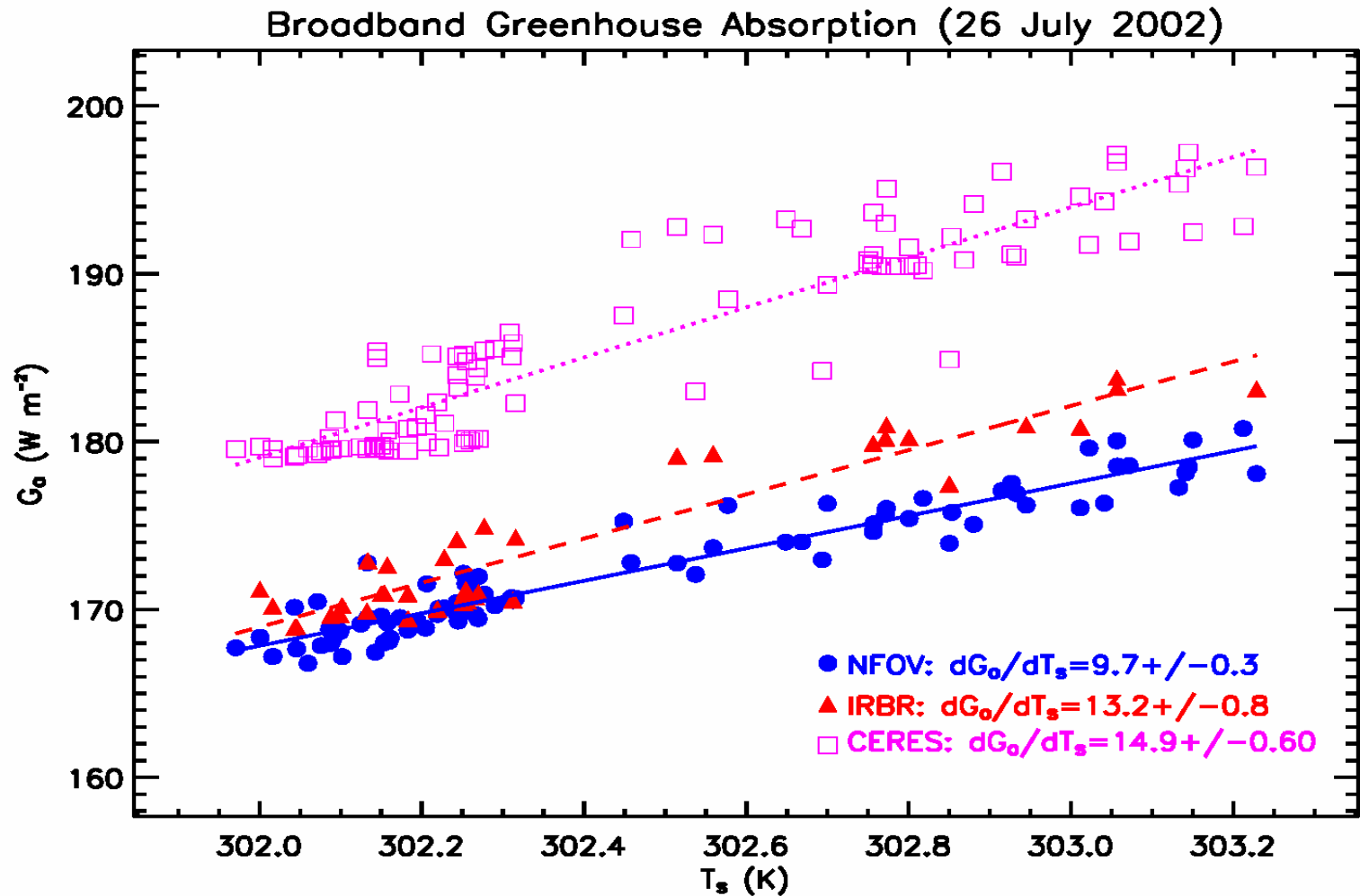


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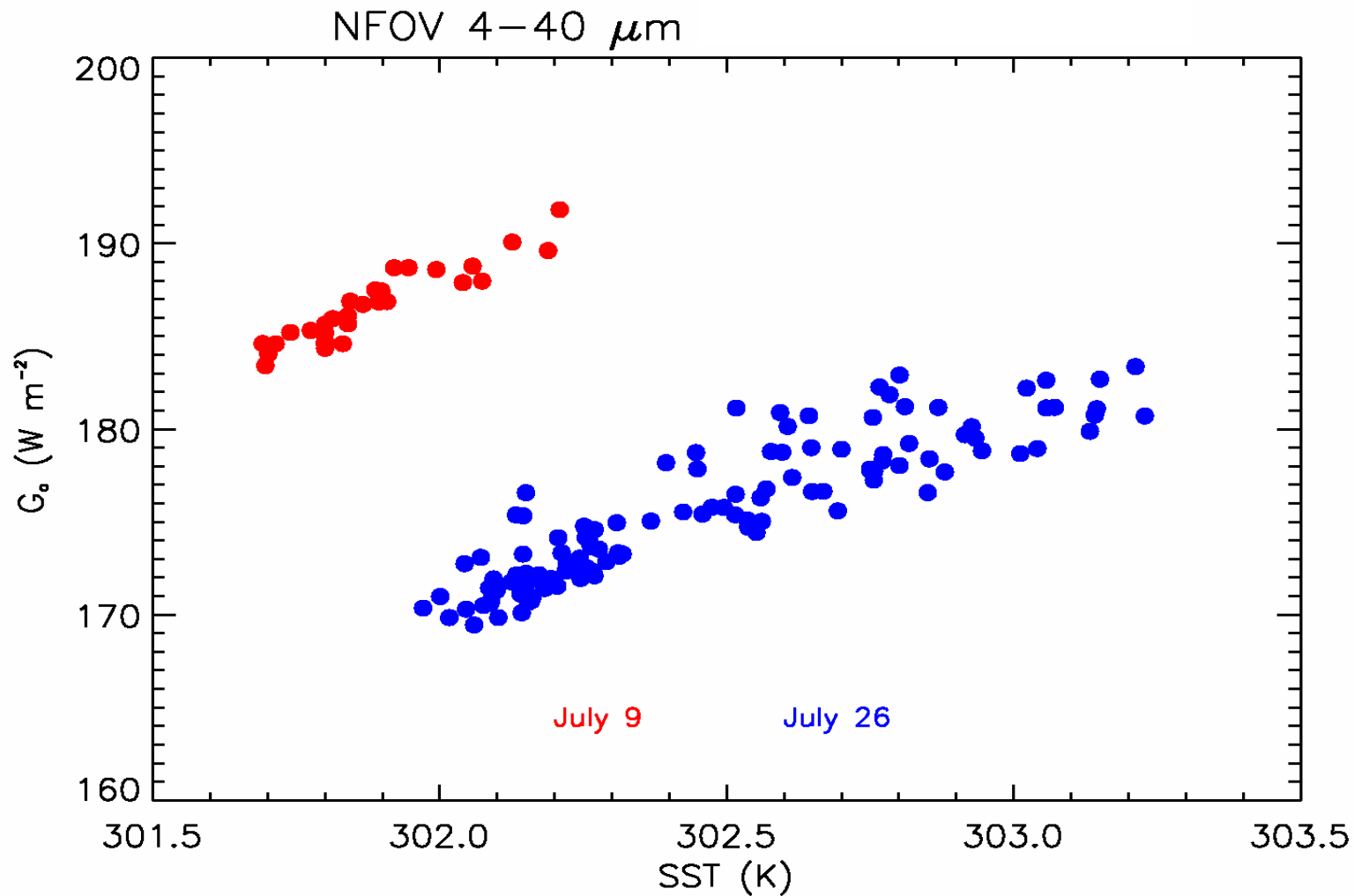




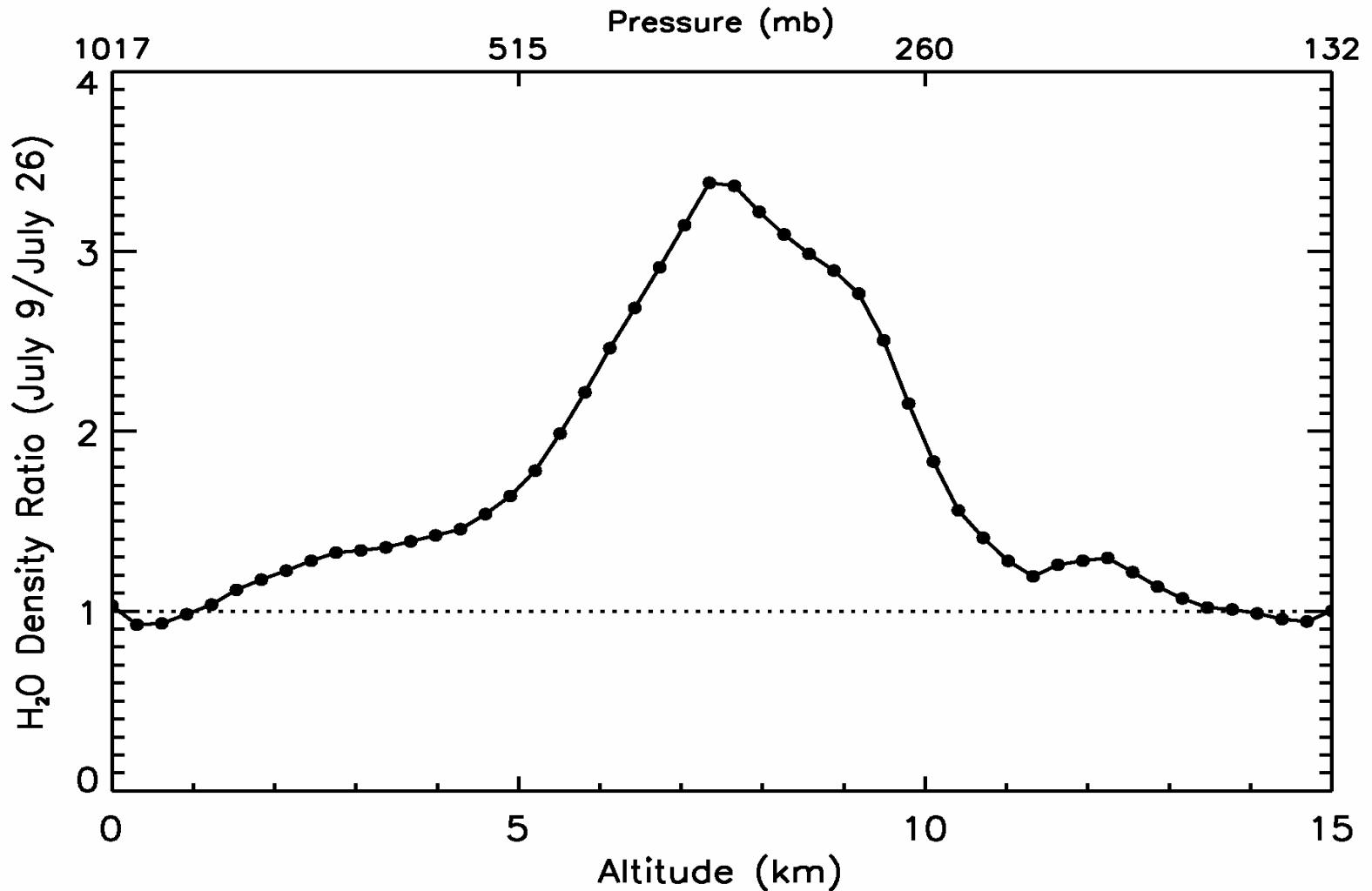
CERES, RAMS (IRBBR and NFOV) Measured Greenhouse Absorption



Comparison of Greenhouse, July 9 and July 26, 2002

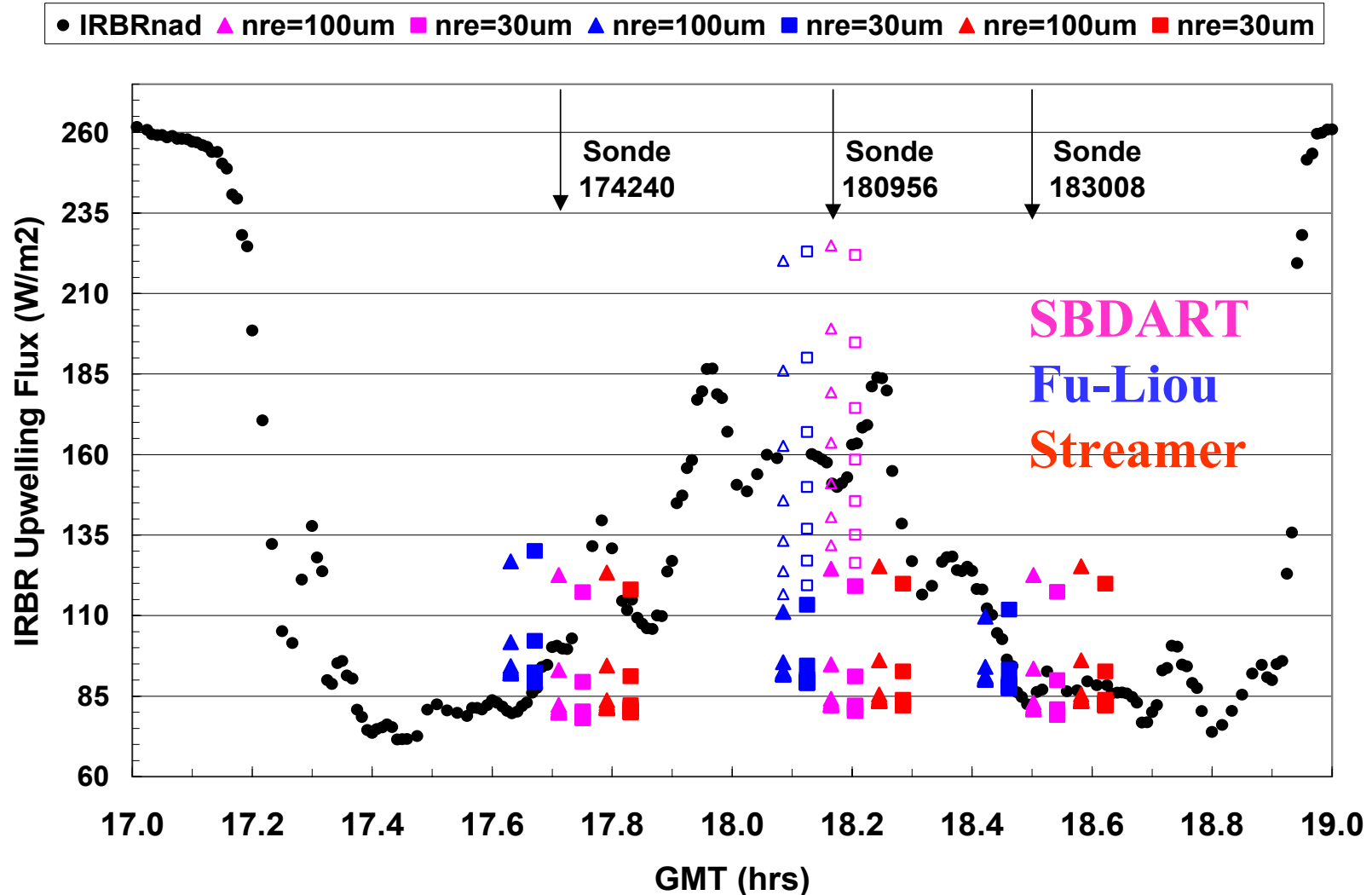


Ratio of Water July 9/July 26



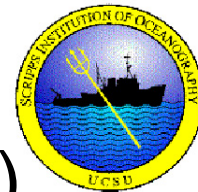
IR irradiance CRYSTAL-FACE, July 9, 2002

Cloud τ : 2,4,8,10,15,20,25,50,75,100 (filled)
Cloud τ : 0.25,0.50,0.75,1.0,1.25,1.5,1.75 (open)

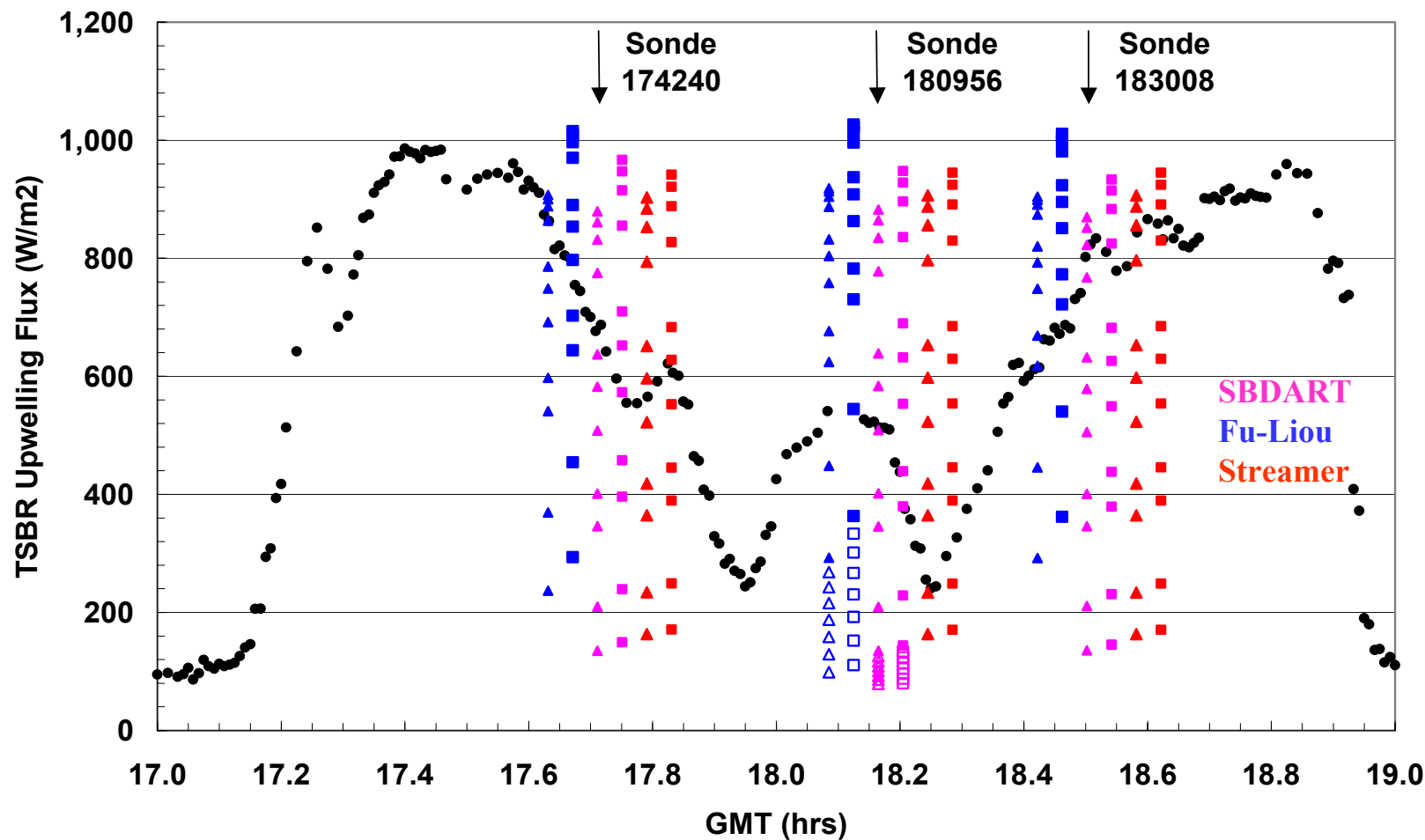


Solar Irr. CRYSTAL-FACE, July 09, 2002

Cloud τ : 2,4,8,10,15,20,25,50,75,100 (filled)
Cloud τ : 0.25,0.50,0.75,1.0,1.25,1.5,1.75 (open)



• TSBR nadir ▲ nre=100um ■ nre=30um ▲ nre=100um ■ nre=30um ▲ nre=100um ■ nre=30um

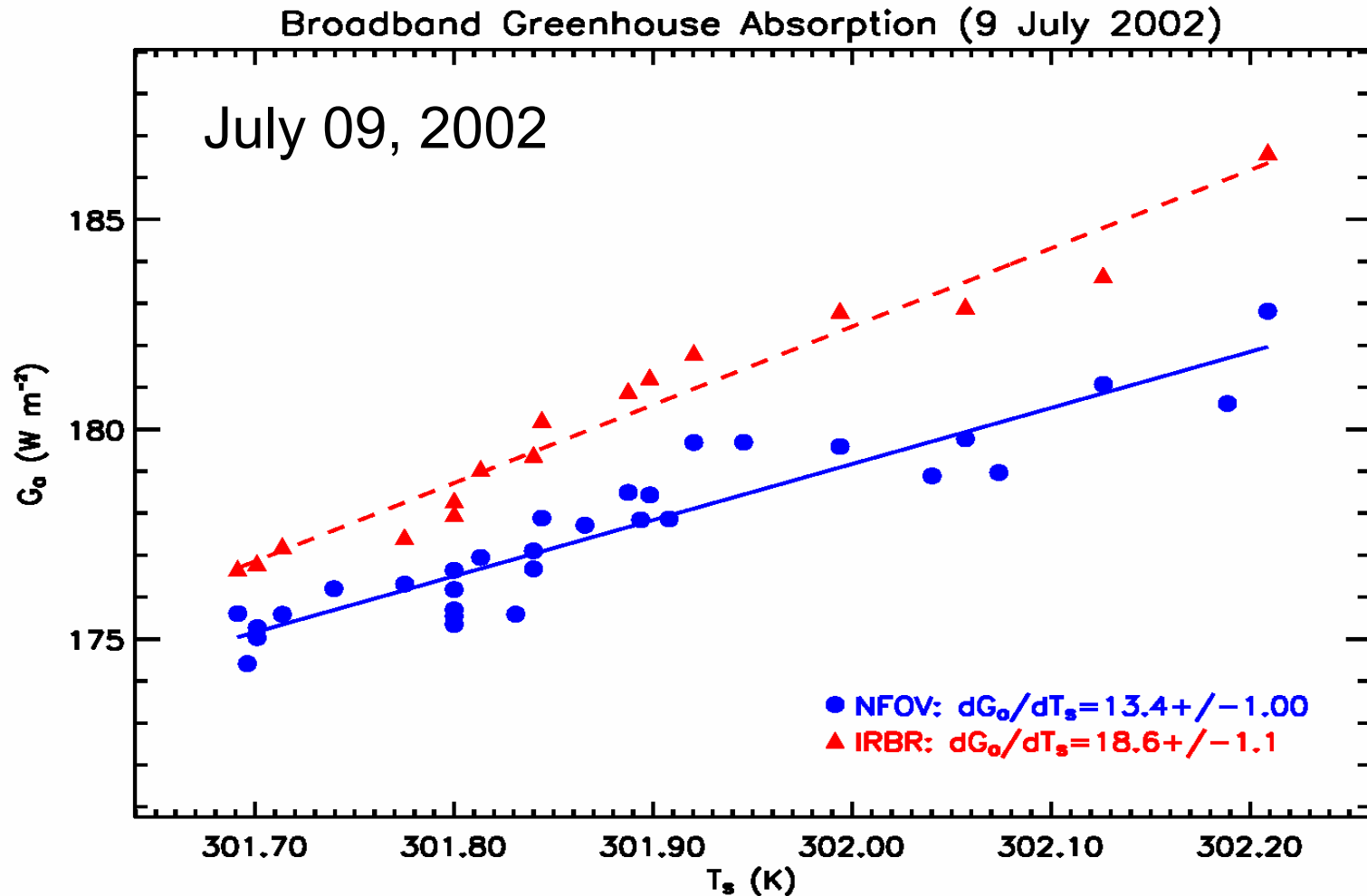


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ER-2/RAMS Measured Greenhouse Absorption



RAMS ER-2 IR Radiances and Irradiances July 26, 2002

